

**DETECTION METHOD USING DISSOCIATED
ROLLING CIRCLE AMPLIFICATION
ABSTRACT OF THE DISCLOSURE**

Disclosed are compositions and methods for detecting small quantities of analytes such as proteins and peptides. The method involves associating a DNA circle with the analyte and subsequent release and rolling circle replication of the circular DNA molecule. In the method, an amplification target circle is associated with analytes using a conjugate of the circle and a specific binding molecule that is specific for the analyte to be detected. Amplification target circles not associated with the proteins are removed, the amplification target circles that are associated with the proteins are decoupled from the specific binding molecule and amplified by rolling circle amplification. The amplification is isothermal and can result in the production of a large amount of nucleic acid from each primer. The amplified DNA serves as a readily detectable signal for the analytes.